



United States  
Department of  
Agriculture

Agricultural  
Marketing  
Service

Fruit and  
Vegetable  
Programs

Processed  
Products  
Branch

# **United States Standards for Grades of Apple Juice from Concentrate**

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## DRAFT

This is the first issue of the United States Standards for Grades of Canned Apple Juice from Concentrate published in the **FEDERAL REGISTER** of XXXX xx, XXXX (xx FR xxxxx) to become effective XXX XX, XXXX.

Voluntary U.S. grade standards are issued under the authority of the Agricultural Marketing Act of 1946, which provides for the development of official U.S. grades to designate different levels of quality. These grade standards are available for use by producers, suppliers, buyers, and consumers. As in the case of other standards for grades of processed fruits and vegetables, these standards are designed to facilitate orderly marketing by providing a convenient basis for buying and selling, for establishing quality control programs, and for determining loan values.

The standards also serve as a basis for the inspection and grading of commodities by the Federal inspection service, the only activity authorized to approve the designation of U.S. grades as referenced in the standards, as provided under the Agricultural Marketing Act of 1946. This service, available as on-line (in-plant) or lot inspection and grading of all processed fruit and vegetable products, is offered to interested parties, upon application, on a fee-for-service basis. The verification of some specific recommendations, requirements, or tolerances contained in the standards can be accomplished only by the use of on-line inspection procedures. In all instances, a grade can be assigned based on final product factors or characteristics.

In addition to the U.S. grade standards, grading manuals or instructions for inspection of several processed fruits and vegetables are available upon request for a nominal fee. These manuals or instructions contain detailed interpretations of the grade standards and provide step-by-step procedures for grading the product.

Grade standards are issued by the Department after careful consideration of all data and views submitted, and the Department welcomes suggestions which might aid in improving the standards in future revisions. Comments may be submitted to, and copies of standards and grading manuals obtained from:

Chief, Processed Products Branch  
Fruit and Vegetable Programs, AMS  
U.S. Department of Agriculture  
STOP 0247  
1400 Independence Avenue SW  
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**UNITED STATES STANDARDS FOR GRADES  
OF APPLE JUICE FROM CONCENTRATE  
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Authority: Agricultural Marketing Act of 1946, Secs. 203, 205, 60 Stat. 1087, as amended, 1090, as amended; (7 U.S.C. 1622, 1624).

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Note: Compliance with the provisions of these standards shall not excuse failure to comply with the provisions of the Federal Food, Drug, and Cosmetic Act, or with applicable State laws and regulations.

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### §52.xxx Product description.

- (a) **Apple juice from concentrate** is the unfermented juice obtained from the first pressing of properly prepared sound, clean, mature fresh apples, and/ or parts thereof by good commercial practice. The juice is filtered, and may be clarified, then concentrated, and then reconstituted to not less than 11.5 degrees brix. Natural volatile apple juice components (apple essence) may be restored to a level that provides a natural apple juice flavor.
- (b) **The apple juice from concentrate** may be processed with or without the addition of antioxidants and is sufficiently processed to assure preservation of the product in hermetically sealed containers.

### §52.xxx Styles of apple juice from concentrate.

- (a) **Style I, Clear** - typical of clarified, filtered, apple juice from concentrate. Clarified means that the pectins, which can cause the juice to become translucent to cloudy in appearance, have been deactivated. Filtered is the process by which particles of apple pulp, pomace, seeds, peel, etc. are removed from the product.
- (b) **Style II, Cloudy** - typical of non-clarified, filtered, apple juice from concentrate, but not a crushed or disintegrated apple product.

### §52.xxx Definitions of terms.

- (a) **Absence of defects** means the degree of freedom from sediment or other residue, dark specks, particles of seeds, coarse particles of pulp, or other defects.
  - (1) **Practically free from defects** means that the apple juice from concentrate for Style I may contain a slight amount of sediment or residue of an amorphous nature; may not have more than a trace of dark specks or of sediment or residue of a non-amorphous nature, or any other defects and for Style II may contain a normal amount of amorphous or non-amorphous sediment or residue, no more than a trace of dark specks or any other defects: **Provided**, that all defects present do not more than slightly affect the appearance or palatability of the product.
  - (2) **Reasonably free from defects** means that the apple juice from concentrate for Style I may have a slight amount of sediment or residue of an amorphous or non-amorphous nature, of dark specks, or of any other defects and for Style II may contain a normal amount of amorphous and non-amorphous sediment or residue, not more than a moderate amount of dark specks and not more than a slight amount of any other defects: **Provided**, that all defects present do not materially affect the appearance or palatability of the product. Apple juice from concentrate that falls into this classification shall not be graded above U. S. Grade B, regardless of the total score for this product (this is a limiting rule).
  - (3) **Fairly free from defects** means apple juice from concentrate which fails to meet the requirements for reasonably free from defects. Such product shall not be graded above **Substandard**, regardless of the total score for this product (this is a limiting rule).
- (b) **Acid** means grams of acid calculated as malic acid, per 100 g of apple juice from concentrate determined by titration with standard sodium hydroxide solution, using phenolphthalein as indicator.
- (c) **Brix** means the percent, by weight, of natural apple soluble solids in the apple juice from

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concentrate, corrected to 20° C (68°F).

- (d) **Color** means the apple juice from concentrate is typical of freshly pressed juice.
- (1) **Good color and clarity** means that the apple juice from concentrate, for Style I, is bright and transparent; and for Style II, is bright and slightly translucent to definitely cloudy; and of a light golden appearance, but not darker than USDA Honey Color Standards **White** designation.
  - (2) **Reasonably good color and clarity** means that the apple juice from concentrate, for Style I, is slightly dull or slightly turbid; and for Style II is typical but not off-color; may be light golden or light amber in appearance, but not darker than USDA Honey Color Standards **Light Amber** designation. Apple juice from concentrate that falls into this classification shall not be graded above U. S. Grade B, regardless of the total score for this product (this is a limiting rule).
  - (3) **Fairly good color and clarity** means apple juice from concentrate that is dull, turbid, or otherwise fails the requirements for reasonably good. Such product shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule).
- (e) **Flavor and aroma** means the degree of excellence and palatability of the apple juice with a distinct flavor and aroma typical of apple juice from concentrate that has been properly processed.
- (1) **Good flavor and aroma** means that the apple juice from concentrate has a fine distinct fruity flavor and bouquet, that is free from astringent flavors, flavors due to overripe apples, oxidation, caramelization, or ground or musty flavors, and is free from objectionable flavors or objectionable aromas of any kind; and in addition, meets the following requirement:

Brix-Acid Ratio	Minimum	21:1
	Maximum	53:1
  - (2) **Reasonably good flavor and aroma** means that the apple juice from concentrate has a normal flavor and bouquet, may be slightly astringent; or may be slightly affected by overripe apples, oxidation, caramelization, or ground or musty flavors, but is free from objectionable flavors or objectionable aromas of any kind; and, in addition, meets the following requirement:

Brix-Acid Ratio	Minimum	18:1
	Maximum	60:1

Apple juice from concentrate that falls into this classification shall not be graded above U.S. Grade B, regardless of the total score for the product (this is a limiting rule).
  - (3) **Poor flavor and aroma** means that the apple juice from concentrate fails to meet the requirements of reasonably good. Apple juice from concentrate that falls into this classification shall not be graded above Substandard, regardless of the total score for the product (this is a limiting rule.)

### §52.xxx Grades.

- (a) **U.S. Grade A** is the quality of apple juice from concentrate that:

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- (1) Meets the applicable requirements of Table I or Table II; and
- (2) Scores not less than 90 points.
- (b) **U.S. Grade B** is the quality of apple juice from concentrate that:
  - (1) Meets the applicable requirements of Table I or Table II; and
  - (2) Scores not less than 80 points.
- (c) **Substandard** is the quality of apple juice from concentrate that fails to meet the requirements for U.S. Grade B.

### **§52.xxx Fill of container.**

The recommended fill of container is not incorporated in the grades of the finished product since fill of container is not a factor of quality for the purposes of these standards. It is recommended that each container be filled as full as practicable with apple juice and that the product occupies at least 90 percent of the volume of the container.

### **§52.xxx Determining the grade.**

- (a) **The grade of apple juice from concentrate** is determined by considering the requirements of each grade with respect to the factors of absence of defects, color and clarity, and flavor and aroma.
- (b) **The relative importance of each factor** is expressed numerically on the scale of 0 to 100 points. The maximum number of points that may be given each factor is:

Factors:	Points
Absence of defects . . . . .	20
Color and clarity . . . . .	20
Flavor and aroma . . . . .	<u>60</u>
Total Score . . . . .	100

### **§52.xxx Determining the rating for each factor.**

The essential variations within each factor are so described that the value may be determined for each factor and expressed numerically. The numerical range within each factor is inclusive (for example, "18 to 20 points" means 18, 19, or 20 points).

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## §52.308 Requirements for grades.

**TABLE I**  
**STYLE I, CLEAR**

<b>Factors</b>	<b>Grade A</b>	<b>Grade B</b>
<b>Color and Clarity:</b>	Good	Reasonably good
	Bright, Sparkling	Slightly translucent
Score Points	18 - 20	16 - 17
<b>Absents of Defects:</b>	Practically free	Reasonably free
Amorphous sediment or residue	Slight	Slight
Non amorphous sediment or residue	Trace	Slight
Dark specks	Trace	Slight
Particles of seeds, pulp or other defects	None	slight
Score Points	18 - 20	16 - 17
<b>Flavor and Aroma:</b>	Good	Reasonably good
Score Points	54 - 60	48 - 53
Total Score	90 - 100	80 - 89
<b>Analytical</b>		
Brix (Minimum)	11.5 degrees	11.5 degrees
Acid (calculated as malic)		
Minimum	0.24 g/100 g	0.19 g/100 g
Maximum	0.67 g/100 g	0.77 g/100 g
Brix-Acid Ratio		
Minimum	21:1	18:1
Maximum	53:1	60:1

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**TABLE II  
STYLE II, CLOUDY**

<b>Factors</b>	<b>Grade A</b>	<b>Grade B</b>
<b>Color</b>	Good	Reasonably good
	Slightly translucent to definitely cloudy	Typical but not off-color
Score Points	18 - 20	16 - 17
<b>Absence of Defects</b>		
Amorphous and non-amorphous sediment or residue	Normal	Normal
Dark specks	Trace	Moderate
Particles of seeds, coarse particles of pulp or other defects	None	Slight
Score Points	18 - 20	16 - 17
<b>Flavor</b>	Good	Reasonably good
Score Points	54 - 60	48 - 53
Total Score	90 - 100	80 - 89
<b>Analytical</b>		
Brix (Minimum)	11.5 degrees	11.5 degrees
Acid (calculated as malic)		
Minimum	0.24 g/100 g	0.19 g /100 g
Maximum	0.67 g/100 g	0.77 g/100 g
Brix-Acid Ratio		
Minimum	21:1	18:1
Maximum	53.1	60:1

**§52.309 Determining the grade of lot.**

The grade of a lot of apple juice from concentrate covered by these standards is determined by the procedures found in the **Regulations Governing Inspection and Certification of Processed Fruits and Vegetables, Processed Products Thereof, and Certain Other Processed Food Products** (7 CFR 52.1 through 52.83).



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**Effective Date.** These grade standards, which are the first issue by the Department for apple juice from concentrate, shall become effective XXXX XX, XXXX.

Dated: XXXX XX, XXXX

/s/\_\_\_\_\_  
Robert C. Keeney  
Deputy Administrator  
Marketing Program Operations

Published in the Federal Register of XXXX XX, XXXX (XX F.R. xxxxx).